

REMARKS

In response to the non-final Office Action mailed January 7, 2008, Applicant submits this Response accompanied by a petition for a one-month extension of time. Claims 1-4 and 6-28 are pending.

The appropriate extension of time fee was paid by credit card upon the electronic submission of this paper. If any additional fees are necessary, kindly charge any cost thereof to Deposit Account No. 13-2855, Order No. 30810/39676A.

REJECTIONS UNDER 35 U.S.C. §103

Claims 1-4 and 6-28 stand rejected under 35 U.S.C. §103(a) as allegedly obvious over Mucha (DE 195 03 027) in view of at least one of Hilton et al. (EP 0 241 188 A1) and Bartels & Rieger (DE 3 512 644). Applicant respectfully traverses these rejections.

The present application describes a breathing apparatus that supplies breathable air to a user from either a filtered system or from a tank. More specifically, the breathing apparatus includes a valve assembly that enables switching while *continuously* providing the user breathable air. This is accomplished by opening and closing a valve assembly with the influence of pressurized air supplied from the tank. So configured, the user is never deprived of breathable air during switching. This configuration is highly beneficial because working in contaminated environments can be stressful and exhausting. Any deprivation of breathable air can compromise the user's strength and ability to manage the task at hand.

Accordingly, in Applicant's Amendment dated October 29, 2007, independent claims 1 and 9 were amended to recite a breathing apparatus comprising, in part, a valve assembly including a first valve and a second valve, wherein, during a switching operation, *pressurized air from a tank opens the first valve and closes the second valve while continuously providing a supply of breathable air to the user*. No prior art or record discloses or suggests such a breathing apparatus, and therefore, the obviousness rejections should be withdrawn.

In rejecting independent claims 1 and 9, the Examiner states that Mucha discloses a valve assembly (4) where "pressurized air supplied from [a] tank opens [a] first valve (22) and closes [a] second valve (23) to actuate said valve assembly (4) from [a] filtered mode to [a] clean air mode while continuously providing a supply of breathable air to the user..." See, page 3, lines 16-21 of Office Action dated January 7, 2008.

Applicant respectfully asserts that the Examiner misunderstands the teachings of Mucha. While Mucha may disclose a valve assembly that switches between a filter mode and a tank mode, such switching is not accomplished with pressurized air, but rather, is accomplished with an electric signal.

Prior Art Fails to Disclose or Suggest Pressurized Air Opening/Closing the Valves

Specifically, as stated in Applicant's Amendment dated October 29, 2007, Mucha teaches a breathing system with a compressed air cylinder 9, a filter system 7,8, a controller 12, and a reversing valve 4. A person having ordinary skill in the art would clearly understand the controller 12 to comprise an electronic controller. The reversing valve 4 is adapted to switch the air supply between the filter system 7, 8 and the compressed air cylinder 9 under the urging of a signal received from the controller 12. For example, Mucha states:

When reaching a threshold value, a control signal goes from controller 12 to control element 13 which converts the control pulse into a translation movement or into a rotary movement for the particular distributing regulator in the reversing valve 4...

See, lines 2-5 on page 3 of the English-language translation of Mucha that was submitted with Applicant's information disclosure statement dated May 2, 2006.

Therefore, Mucha clearly discloses a valve assembly that is actuated, e.g., opened and closed, under the influence of an electric signal that is generated by the controller 12 and/or control element 13.

Neither Mucha nor any other reference of record discloses or even suggests a valve assembly that is opened and closed by pressurized air, as recited in independent claims 1 and 9 of the present application.

Prior Art Fails to Disclose or Suggest Providing a Continuous Air Supply While Switching

Regardless of the Examiner's assertion in the Office Action, neither Mucha nor any other reference of record discloses or suggests a valve assembly that switches from one mode to another while continuously providing a supply of breathable air to the user, as recited in independent claims 1 and 9.

Specifically, when the system of Mucha is switched between the filter mode and the tank mode, there is inherently a moment of dead-time when the user is not provided any breathable air. For example, Fig. 2 of Mucha depicts one embodiment of the reversing valve, which is positioned to provide a user with air from the filter system via conduit 5. To switch to the compressed air supply, the controller 12 generates a signal to move the piston to the left such that control edge 23 closes conduit 5 and control edge 22 opens conduit 6. As illustrated in Fig. 2, control edge 23 is positioned only slightly to the right of conduit 5 when conduit 5 is open, while control edge 22 is positioned well to the right of conduit 6 when conduit 6 is closed. This positioning of control edge 22 is required such that the piston can overlap and securely close conduit 6 when in the illustrated position. As such, when the piston begins to move to the left, control edge 23 begins to close conduit 5 prior to control edge 22 opening conduit 6. Therefore, the reversing valve depicted in Fig. 2 generates a moment of dead-time during this switching operation when the user is not provided breathable air. Fig. 5 of Mucha illustrates an alternative reversing valve that operates generally identical to that depicted in Fig. 2, and therefore, also creates a moment of dead-time.

Moreover, Figs. 3 and 6 of Mucha illustrate further similar embodiments of reversing valves that create a moment of dead-time during switching. For example, in Fig. 3, a cylinder 25 of the rotary reversing valve is positioned such that a bore 26 defined therein provides fluid communication between the filtered system (via conduit 5) and the user (via conduit 2). To switch to compressed air supply, the controller 12 generates a signal to rotate the cylinder 25 such that the bore 26 provides communication between the compressed air tank (via conduit 6) and the user (via conduit 2). However, as illustrated in Fig. 3, conduits 5 and 6 are circumferentially spaced apart. Therefore, as the bore 26 in the cylinder 25 is rotated between conduit 5 and conduit 6, there is a moment of dead-time when the bore 26 is positioned between the conduits 5, 6. At this moment, the user is not provided breathable air.

Therefore, the arrangements of the reversing valves disclosed in Figs. 2, 3, 5, and 6 of Mucha cannot switch from one mode to another while continuously providing a supply of breathable air to the user, as recited in independent claims 1 and 9. Furthermore, no other reference of record discloses or suggests these features.

In light of the foregoing, the Office Action fails to establish a *prima facie* case of obviousness because the prior art references, when combined, fail to teach or suggest all of the limitations of the claims. MPEP §2145.

Reconsideration and withdrawal is respectfully requested.

CONCLUSION

If there are any outstanding issues that the Examiner believes may be remedied via telephone conference, please feel free to telephone the undersigned at (312) 474-6300.

Dated: May 7, 2008

Respectfully submitted,

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